

**SORE Evaporative Certification FAQ's**  
**(Ref: Article 1, Chapter 15, Division 3, Title 13 CCR)**  
**(Revised 2/1/2011)**

**1. Engine and Equipment Certification**

- 1-1. Is the certification holder liable if an end user modifies the evaporative emission system?

Response: No. However, the end user is prohibited from tampering with certified control systems pursuant to California Health and Safety Code Section 43008.6.

- 1-2. Are vapor lines (line connecting the tank vent to a carbon canister) required to meet the 15 g/m<sup>2</sup>/day permeation standard?

Response: No.

- 1-3. Do vapors from the carburetor need to be controlled?

Response: There are no specific requirements to control emissions from the carburetor. However, controlling the emissions from the carburetor will provide a greater margin of compliance.

- 1-4. Does a manufacturer need to describe how running loss emissions are controlled in a certification application? What if the manufacturer installs a carbon canister that meets the requirements in the regulations?

Response: Yes. In any case where a manufacturer applies for engine and equipment certification and uses a carbon canister that meets the requirements of the regulations, the manufacturer must still provide an engineering description of the evaporative emission system as part of the certification application. The description should describe how vented tank emissions are prevented from being emitted into the atmosphere during engine operation. In addition, Executive Officer approval is required for running loss determinations on evaporative emissions systems using a passive carbon canister. Test data is necessary to demonstrate the running loss emissions are attenuated (see FAQ 1-40).

- 1-5. a) What criteria will ARB utilize to determine if the fuel cap performance standard of 13 CCR 2756 is met?

Response: The intent of 13 CCR 2756(a) is to ensure that the fuel cap remains attached to the tank, equipment, or engine for the full useful life of the small off-road engine or equipment under normal use.

To meet the requirement of 13 CCR 2756(b), a description and an evaluation of how the user feedback and vapor seal are established should be included in the certification application. Fuel caps used on systems that pass a diurnal performance test are considered compliant with the vapor seal requirement.

In the certification application, the manufacturer must describe how their fuel cap meets the performance standards in 13 CCR 2756(a) and 2756(b) by providing a design diagram. Please provide the fuel cap description on page 42 for performance-based, page 44 for design-based, and page 46 for small production volume tank manufacturers. If necessary, ARB may request manufacturers to submit fuel cap and tether samples for evaluation.

As an alternative, if an equipment manufacturer is using the same fuel cap design in a number of certification applications, they may choose to submit the fuel cap design to DMS once and get an ARB approval number (not a component EO) for that specific design. Then, as long as there are no changes, manufacturers can just list the ARB approval number on future applications instead of providing the design diagram.

b) Can a fuel cap manufacturer request an ARB approval number for their fuel cap design to provide to equipment manufacturers?

Response: Although this is not a requirement, a fuel cap manufacturer may voluntarily choose to request an ARB approval number (not a component EO) for their fuel cap design if they are selling the same fuel cap to a number of equipment manufacturers. Then, the fuel cap manufacturer can provide the equipment manufacturer with the ARB approval number to list in their certification application instead of providing the design diagram.

For fuel cap manufacturers that would like to request an ARB approval number for their fuel cap design, please provide a letter along with the supporting information specified in Question 1-5.a above to the following address:

Ms. Annette Hebert, Chief  
Mobile Source Operations Division  
9480 Telstar Ave., Suite 4  
El Monte, CA 91731

- 1-6. Can engines or equipment be certified with the engine family name and the 2 letter evaporative code that is independent of the exhaust engine family name?

Response: Yes. Manufacturers can use an integrated exhaust and evaporative label with the last two characters of the exhaust family code representing the evaporative family.

- 1-7. What level is being certified for an evaporative family certified to performance standards, the Evaporative Model Emission Limit (EMEL) or Evaporative Family Emission Limit Differential (EFELD)?

Response: The EMEL and EFELD are only applicable when a manufacturer is participating in the averaging and banking provisions of section 2754.1. When a manufacturer chooses to certify engines using the regulatory provisions for averaging and banking, the level being certified is the EFELD and not the EMEL. If ARB were to test any engine within an evaporative family, no engine could be closer to its respective standard than the EFELD calculated from the EMEL for the worst case engine or equipment.

- 1-8. How do the effective dates of the evaporative and exhaust emission regulations interact for cases where the engine manufacturer is the exhaust EO holder and the equipment manufacturer is the evaporative EO holder? For example if an OEM certifies and produces a product in their 2008 model year, can that product be built with an engine certified and built by the engine manufacturer in the 2007 model year?

Response: For equipment manufactured prior to or during a specific model year, the engine or equipment must comply with the respective exhaust and evaporative standards in effect for that model year in which it was produced. In the example described above, as long as the 2007 model year engine was compliant with the 2007 model year exhaust standards, and the 2008 model year equipment is compliant with 2008 model year evaporative requirements, a 2008 model year evaporative certification could be issued for the equipment.

- 1-9. Do carbon canisters need to be used on systems with pressurized non-vented fuel tanks?

Response: No. The regulations do not specify the technology that must be used.

- 1-10. Does a running change need to be submitted if the OEM puts an "Equivalent Fuel Tank" or "Equivalent Fuel Line" on the engine?

Response: Yes. Any changes to a certified evaporative emission control system will require the certification holder to submit a running change request.

- 1-11. Can "running losses" be redirected back into the intake manifold as opposed into a carbon canister?

Response: Yes, running loss emissions that are combusted are considered controlled.

- 1-12. Does the small production volume tank exemption apply to engines less than 225 cc in displacement?

Response: No. The staff report and the final statement of reasons clearly describes ARB's intent to only allow the exemption for engines greater than or equal to 225 cc.

- 1-13. Do diesel engines need to be counted in the total of models sold in California when qualifying for a small production volume tank exemption?

Response: No. Compression-ignited engines are not regulated in the small off-road engine regulations.

- 1-14. What do manufacturers of equipment meeting the small production volume exemption in Section 2766 need to do to be compliant with the regulations prior to the 2010 model year?

Response: Manufacturers meeting the small production volume exemption in Section 2766 must certify equipment annually pursuant to Section 2753 (d). However, equipment is not required to be configured with low permeation fuel hoses and carbon canisters or conform to fuel cap performance standards until model year 2010.

- 1-15. Can a manufacturer omit the evaporative code from the label on engines and equipment for model years when only a low permeation hose is required?

Response: Yes. For the model years when only a low permeation hose is required, the manufacturer can omit the evaporative code from the label. However, the label must still contain an unconditional statement of compliance.

- 1-16. In Table 1 of Section 2754 for the displacement category > 225 cc, there is an effective date of 2010 with a reference to footnote 4. The reference is not in the regulations. Please clarify.

Response: Footnote 4 was inadvertently removed from proposed 15-day modifications, published May 14, 2004, when the regulations were finally approved by the Office of Administrative Law. The footnote read as

follows: “<sup>4</sup> Applies to small production volume tanks exempted pursuant to section 2766.”

1-17. What is an evaporative family? Where is it defined?

Response: An evaporative family includes engine or equipment models that share similar fuel systems, engine designs, and emission control features such that the equipment can be expected to exhibit similar evaporative emission characteristics. It is noted in CP-902.

1-18. Can a manufacturer use more than two characters for the evaporative family codes as required by CP-902?

Response: Yes. However, the first two characters of the evaporative family code must be as specified by CP-902.

1-19. Is certification required for generators that are fueled from the fuel tank of an on-road motor vehicle?

Response: Yes, 13 CCR Section 2753 (d) applies.

1-20. For motor homes that are sold with generators less than 19 kilowatts, does the effective date apply to the model year of the motor home chassis or the model year of the generator?

Response: The effective date applies to the model year of the generator.

1-21. What is the maximum time for the issuance of an Executive Order of Certification?

Response: 120 days.

1-22. How does a manufacturer submit data?

Response: Data should be submitted using Filemaker Pro template forms created by OPEI. Since the ARB does not use Filemaker Pro, hardcopies must be submitted to ARB for processing.

1-23. In the year(s) you are required to meet fuel hose permeation standard only, what will the Evaporative Family Code be?

Response: In years that you are required to meet fuel hose permeation standards only, the evaporative family code can be omitted from the label. However, the label must still contain an unconditional statement of compliance for evaporative emissions.

- 1-24. Are chainsaws 45 cc and greater less than 25 hp (19 kW), presumed to be construction or farm equipment and therefore preempted, still preempted?

Response: Yes.

- 1-25. How can you measure the internal surface area for irregular tanks?

Response: Good engineering practices are used to calculate surface areas for irregular shaped tanks.

- 1-26. Do you have to repeat preconditioning when conducting a retest or confirmatory test if the original test results indicate marginal compliance?

Response: The retest must be performed on the same engine and/or equipment that generated the original test results. No additional preconditioning is required if the fuel system has continuously contained fuel subsequent to the original test.

- 1-27. The manufacturer does not want to specify Date of Manufacture (DOM) on the emissions label and instead use a serial number, which he says, can be used to identify the DOM if necessary. Would this be acceptable?

Response: 13 CCR Section 2759 (h) applies here. Although ARB can approve alternate labels, the manufacturer must have the DOM listed on the emission label.

- 1-28. Alternatively, can the manufacturer specify the DOM on a separate decal placed adjacent to the evaporative label?

Response: See answer to #1-27.

- 1-29. For MY 2006, would "Fuel Hose" be acceptable under the emission control system portion of the evaporative label or could it be left blank?

Response: 13 CCR 2759 (c)(4)(C) applies here. Fuel hose should be acceptable for 2006 MY equipment.

- 1-30. Can a manufacturer opt to report only the base engine/equipment model(s) in the Model Summary page (A-9) of the certification application?

Response: Yes. A manufacturer may report just the base engine/equipment model(s), provided all variations of the base model are equipped with identical evaporative controls. The naming convention for base engine/equipment model(s) reported must contain sufficient common

identifiers to associate specific model variation to its appropriate base model.

For design based certification, manufacturers must report the component(s) (via reporting the component Executive Order number) associated with each engine model in the Model Summary page of the certification application.

- 1-31. Why does ARB need detailed information on fuel line length and diameter for all engines used by an OEM?

Response: ARB uses the detailed information for emissions inventory calculations.

- 1-32. When will the fuel line between the fuel pump and filter (if supplied by a manufacturer) need to comply with the low permeation requirement?

Response: Not until the 2006 engine manufacturer model year.

- 1-33. When the evaporative certificate holder is not the manufacturer of the finished product, can the certification submission define the worst case configuration that is being certified?

Response: The certificate holder is responsible for communication to the producer of the finished product for terms of the compliance with the Executive Order. The finished product can include configurations that emit at lower levels (e.g. smaller fuel tanks, larger capacity canisters) than the worst case tested and documented in the certification submission.

- 1-34. How is the HP determination (SORE or LSI engines) determined?

Response: The engine manufacturer declares the maximum power rating in the exhaust certification submission.

- 1-35. Does nominal fuel tank capacity include un-useable volume?

Response: No, nominal fuel tank capacity excludes un-useable volume.

- 1-36. Should all emissions related and emissions critical components be labeled?

Response: Yes. According to 13 CCR 2759(a), emissions related and emissions critical parts must be properly labeled in order to identify equipment that meets applicable evaporative standards.

- 1-37. What is an appropriate default equipment volume for SHED testing class I and class II engines?

Response: An appropriate default equipment volume for SHED testing would be 3 ft<sup>3</sup> for class I engines and 5 ft<sup>3</sup> for class II engines.

- 1-38. Must I use the same ARB approved test fuel for evaporative testing that I used for exhaust testing?

Response: No, a manufacturer can choose a different ARB approved fuel for evaporative testing than the one used for exhaust testing.

- 1-39. What are the definitions of “active purge” and “passive purge”?

Response: Active purge refers to the ambient air being drawn through a carbon canister by a vacuum created by the intake system. Passive purge refers to ambient air being drawn through a carbon canister by the vacuum created by normal diurnal temperature variations of the fuel tank temperature.

- 1-40 Under what circumstances, if any, can an evaporative system use a passive rather than an active purge system? And what test data or other information is required to certify a passive evaporative system? And what level of running loss control is acceptable?

Response: A manufacturer can certify to the performance standards of 13CCR, section 2754 (a), or to the design standards of 13 CCR section 2754 (b) with a passively purged carbon canister if the Executive Officer approves the running loss determination before the certification process. For a manufacturer certifying a passively purged system, adequate test data must be included in the certification application that allows an engineer to conclude that running loss emissions are not freely emitted into the atmosphere unattenuated during engine operation. At a minimum, the running loss demonstration test data needs to show that the evaporative system could handle a running loss event after repeated diurnal cycles and is:

- designed to control running loss emissions from being emitted into the atmosphere
  - Data example 1: For a carbon canister controlled fuel tank design, provide carbon canister capture and loss gravimetric measurements before and after a running loss event
  - Data example 2: Ambient and fuel tank head space pressure and vacuum measurements throughout a running loss event



- designed in a manner that protects the system from exposure to liquid fuel, extreme temperatures or pressures, or other conditions that would make the system less efficient or inoperable
  - Design example 1: Evidence fuel slosh is not interfering with carbon canister performance
  - Design example 2: Temperature shielding or air flow benefiting the evaporative emissions system

An ARB control number will be assigned to each approved running loss determination and should be referenced in a SORE equipment Executive Order application. The running loss determination Executive Officer approval request package is sent to:

Chief, Monitoring and Laboratory Division  
 Air Resources Board  
 P.O. Box 2815  
 Sacramento, CA 95812

At a minimum, the package should include a letter requesting the running loss determination, a functional description of the evaporative emission system, the test procedure, the test data, and an interpretation of the test results.

- 1-41. In light of the explicit requirement for active purge on engines equipped with carbon canisters as stated in TP-902 section 3.3 (quoted above), where in the regulatory documents or guidance is the exception to this requirement stated?

Response: 13CCR, section 2754 states that an approval of the Executive Officer is required if actively purging canisters that do not meet the requirements of the regulation, such as passively purged carbon canisters, are used.

- 1-42. Are there any part making requirements for fuel system or evaporative control system components on design based certified products? On performance certified products?

Response: None other than the design requirements outlined in 13CCR, section 2754(b). There are no part requirements for systems certified under 13CCR, section 2754(a).

- 1-43. Should equipment manufacturers be required to apply labels to their equipment if they meet the small production volume tank exemption

requirements of Section 2766(b)? If so, what should be included on the label?

Response: As per Section 2759, equipment manufacturers (and engine manufacturers where applicable) must include a label on their equipment indicating that the equipment conforms to California regulations. However, Section 2759(c)(4)(E), the unconditional statement of compliance, should read:

~~"THIS EQUIPMENT CONFORMS TO (CURRENT MODEL YEAR) CALIFORNIA EVP REGULATIONS FOR SMALL OFF ROAD ENGINES UNDER 13 CCR SECTION 2766(b)."~~ **"THIS EQUIPMENT MEETS CALIFORNIA (13 CCR SECTION 2766(b)) EVP EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES FOR 20XX MODEL YEAR."**

The requirements of Section 2759(c)(4)(A), (B), and (D) are still in effect for the label, as is the remainder of Section 2759.

- 1-44. If a manufacturer certifies a 50-state evaporative family under the small production volume tank exemption in Section 2766(b), how can the manufacturer demonstrate that their total California sales of a particular fuel tank is 400 or fewer units per model year?

Response:

2009 and Later Model Years

For 2009 and later model years, the evaporative families that are certified under the small production volume tank exemption must meet the following requirements:

- 1.) All units must be labeled in accordance with the FAQ 1-43 language:  
~~"THIS EQUIPMENT CONFORMS TO (CURRENT MODEL YEAR) CALIFORNIA EVP REGULATIONS FOR SMALL OFF ROAD ENGINES UNDER 13 CCR SECTION 2766(b)."~~ **"THIS EQUIPMENT MEETS CALIFORNIA (13 CCR SECTION 2766(b)) EVP EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES FOR 20XX MODEL YEAR."**
- 2.) If the projected 50-state sales is <4000 units, manufacturers do not have to submit any additional documentation to demonstrate that their total California sales is 400 or fewer units (since manufacturers' data suggests that typical California sales are less than 10 percent of 50-state sales).
- 3.) If the projected 50-state sales is  $\geq$  4000 units,

A. Recommended Option:

Manufacturers print and use up to 400 small production volume tank exemption labels only. In addition, a serial number must be included on each label to ensure that the total number of labels that are issued do not exceed 400 units.

B. Alternatives:

If manufacturers choose not to limit the small production volume tank exemption labels to 400 or fewer units, they are required to either

- i.) submit an annual year-end actual California sales report for a period of 5 years from the beginning of the specific model year, OR
- ii.) obtain prior ARB approval on an alternate method of assurance not presented in this response.

To assist in the certification process, manufacturers must provide a description of how they plan to demonstrate that their total California sales of a particular fuel tank is 400 or fewer units per model year in the Additional Comments page (item 66) of the certification application.

2006 – 2008 Model Years

Manufacturers who have already certified for 2006 and 2007 model years under the small production volume tank exemption do not have to submit any additional documentation.

Manufacturers who have applied or are applying for 2008 small production volume tank exemptions for their 50-state evaporative families and have projected 50-states sales  $\geq 4000$  units will be required to submit a year-end actual California sales report within 90 days after the end of the model year (no later than March 31, 2009). Manufacturers that have projected 50-states sales of  $<4000$  units do not have to submit any additional documentation.

- 1-45. With the new requirements that U.S. EPA has promulgated on October 8, 2008, and amended on April 30, 2010 for Evaporative labels (40 CFR 1060.135), is it possible to have a combined label for 50-state equipment?

Yes, for SSIE and LSIE ( $\leq 1$  Liter) equipment, manufacturers may use a combined label for equipment that meet both U.S. EPA and ARB evaporative emission requirements. Manufacturers shall include all of the California label requirements per section 2759. Staff may also accept the addition of the following U.S. EPA information:

- 1) For the label heading, "Emission Control Information" may be substituted for "Important Emissions Information."

- 2) For a design-based certification product label, adding “Using Certified Components” at the end of the compliance statement.
- 3) For the combined compliance statement: “THIS EQUIPMENT MEETS U.S. EPA AND CALIFORNIA EVP EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES FOR 20XX MODEL YEAR.” (Manufacturers may use a similar structure for SSIE exhaust and LSIE  $\leq$  1 Liter exhaust and evap labels.)

## 2. Component Certification

- 2-1. Is there a formal application format for component certification?

Response: No. A manufacturer needs only to provide a letter, signed by an authorized Company representative, requesting component certification.

- 2-2. What information is required in a component certification application?

Response: In general, 13 CCR Section 2767.1 requires the manufacturer to submit supporting documentation that quantifies the emissions data from 5 component samples, including the test method(s) used to generate the data. The manufacturer needs to provide this information in a letter on company letterhead to ARB requesting component certification. An authorized company representative must sign the letter. The manufacturer should also submit a sample of the component, drawings, installation and maintenance instructions, and identify limits or conditions on component usage. The manufacturer may elect to provide additional information regarding the materials used in the design and construction of the component. The following requirements are specific to each type of component. Deviation from these requirements constitutes an alternative test procedure and requires pre-approval.

### Fuel Hose Component Certification

- Fuel hoses tested must have the smallest inside diameter for the production range;
- Testing must be conducted at a constant 40°C, or higher;
- Test fuel used must be Cert fuel, Indolene, CE10, or CM15; and
- Permeation rate must be measured following SAE J1737.

### Fuel Tank Component Certification

- Fuel tanks tested must have the smallest ratio of tank volume to internal surface area for the production range;
- Testing must be conducted at a constant 40°C;
- Test fuel used must be Cert fuel, Indolene, CE10, or CM15; and
- Permeation rate must be measured following TP-901.

#### Carbon Canister Component Certification

- Working capacity must be measured following TP-902, including durability testing prior to measurement of working capacity;
- Canister must be loaded with butane mixed 50/50 by volume with air or nitrogen; and
- Manufacturer must specify the largest tank from which the carbon canister can control vapors and still meet the performance requirements in TP-902.

2-3. Are component certifications required on an annual basis?

Response: No. A component Executive Order is valid until revoked.

2-4. Can a manufacturer submit an application for a component Executive Order with fewer than five data points?

Response: No. Section 2767.1 specifically requires a minimum of five data points.

2-5. Are component certifications provided on a family basis or on an individual part basis?

Response: An Executive Order can be issued for an individual component or for a range of component sizes. The manufacturer must specify the range in the request for component certification along with the minimum barrier thickness.

2-6. What is the basis and rationale for the multiple data points required for component based certification?

Response: Section 2767.1 requires the manufacturer to submit emissions data from a minimum of 5 component samples. Multiple data points for a component that shows compliance with specified performance requirements provides the ARB with a greater assurance that the component will perform as intended.

2-7. What statistical criteria will ARB use to evaluate component data?

Response: For component certification under Section 2767.1, ARB requires that emissions data from each of the five samples comply with the specified performance requirement. ARB will ensure that each data point is below the specified requirement and that the specified test method was used.

- 2-8. If test data for a fuel line is generated above 60 Degrees Celsius, does the data still need to be below 15 g/m<sup>2</sup>/day?

Response: Yes. The fuel hose permeation requirement is not lowered when data is generated at test temperatures greater than 60 Degrees Celsius.

- 2-9. On the evaporative warranty statement, can a manufacturer list different manufacturer/distributor names and contacts of manufacturers that sell their products as long as the remainder of the warranty is unchanged? For example, Company A sells an equipment model through Company B. Company A is the primary manufacturer but wants to use a contact at Company B in the warranty statement for the warranty contact. Is this acceptable? Please also note that 13CCR Section 2759(c)(4)(B) allows for this on the equipment labels.

Response: This is acceptable; however, the manufacturer applying for certification will ultimately be responsible. In other words, if Company A is the certification holder, but Company B's name is on the Warranty Statement, ARB will hold Company A responsible.

- 2-10. In field S9 of the Model Summary in the Certification Database Form, can the nominal fuel line lengths be grouped into increments of  $\pm 3$  inches (76mm) as shown in an early draft of the guidance document? Footnote is missing in the September 2005 draft of guidance document.

Response: Yes, it will be included in the next draft of the Certification Guidelines.

- 2-11. What does the warranty cover and who is responsible?

Response: The warranty covers the evaporative emission system components. The EO holder is responsible for all components. (Ref. part 2764 of the regulation)

- 2-12. What is the length of time given to engine manufacturers and OEM's to change over if a design based component manufacturer has their EO revoked?

Response: They will be able to continue to use the component through the model year. If it occurs late in the model year, issues may arise and effected manufacturers can apply for hardship relief in those cases.

- 2-13. Once the component is mounted to the equipment the component label may no longer be visible unless removed from the equipment. Is this acceptable if the entire piece of equipment has a visible compliance label?

Response: Yes it is acceptable for the component label to be obscured by another piece of the equipment as long as the equipment certification label is visible and states that the equipment is certified to California standards.

- 2-14. Is it acceptable to not use a contrasting color on a component label?

Response: Yes it is acceptable to not use a contrasting color on a component label as long as the label is visible from 46 cm.

- 2-15 Can more than one carbon canister be used to certify equipment under the design requirements?

Response: Yes. When it comes to using two carbon canisters on a separate two tank system ARB approves the use of **one** canister for each separate tank as long as the canister's working capacity is compatible to the size of the tank.

However, when it comes to using multiple canisters in sequence for one large fuel tank ARB would require that the canister manufacturer apply for a new component EO under the innovative products program. Canisters in sequence must be tested per TP-902 and the working capacity data should be submitted with the request for a new component EO. As with single carbon canister EOs, the working capacity of the canisters in sequence should determine the maximum fuel tank capacity.

### 3. Test Procedures

- 3-1. Can I submit data generated with a modification of the test procedure?

Response: Any alternative test procedure shall only be used if prior written approval is obtained from the ARB. In order to secure the ARB's approval of alternative test procedures, the applicant is responsible for demonstrating to the ARB's satisfaction that the alternative test procedures are equivalent to the required test procedures. Alternative test procedures may be submitted to the following address:

California Air Resources Board  
Monitoring Laboratory Division  
P.O. Box 2815  
Sacramento, CA 95812  
Attn. Division Chief

3-2. Can I use Indolene as a test fuel in TP-901?

Response: Yes, ARB will accept data generated with Indolene Clear as referenced in 40 CFR 86, Section 113-94(a)(1).

3-3. Can I use a different test fuel than those specified in the SORE regulations?

Response: Manufacturers may only use a different test fuel if pre-approved by the Executive Officer as part of an alternative test procedure.

3-4. When conducting SHED testing, can we test the engine without chassis?

Response: Yes, the engine with complete evaporative emission control system can be tested without the equipment chassis.

3-5. Where should the canister be located when conducting a SHED test without the chassis?

Response: The canister should be positioned in a position comparable to where it would normally be found on equipment.

3-6. Does the engine need to be placed under a load during engine warm-up prior to the hot soak portion of the test procedure?

Response: No. The engine or equipment must simply be operated for 15 minutes prior to hot soak.

3-7. How is the worst case tank determined (as required for testing in TP 901)?

Response: It is the tank with the most surface area for tank volume (Tank Volume/ Surface Area = lowest number).



- 3-8. Are the provisions for accelerated soaking at higher temperatures identified in TP-902 available for tank permeation testing as identified in TP-901?

Response: Yes, the same provisions apply to TP-901.